WHAT IS CLAIMED:

1. A routing system comprising:

a plurality of routing resources; and

a plurality of virtual routers configured to share selected ones of the routing resources.

2. The router of claim 1, wherein the routing resources includes logic resources and physical resources.

3. The routing system of claim 2, wherein the logic resources include routing processes and forwarding processes.

4. The routing system of claim 3, wherein the physical resources include control resources and data resources.

5. The routing system of claim 1, wherein the shared selected ones of the routing resources includes routing processes, forwarding processes, control resources, and data resources.

6. The routing system of claim 4, wherein the control resources include at least one routing table and the data resources include transmission bandwidth of at least one port of the routing system.

7. The routing system of claim 1, wherein the selected ones of the shared resources are user programmable.

8. A network point-of-presence (POP) comprising:

a physical router system having a plurality of resources;

at least one backbone router implemented as a virtual router by the physical router system; and

at least one regional router implemented as a virtual router by the physical router system, wherein

the backbone virtual router and the regional virtual router share resources of the physical router system.

9. The network POP of claim 8, further comprising:

ports connecting the backbone virtual router to a high capacity transit network; and

ports connecting the regional router to a metropolitan area network.

10. The network POP of claim 8, wherein the physical router is a single physical router.

11. The network POP of claim 8, wherein the plurality of resources include logic resources and physical resources.

12. The network POP of claim 11, wherein the logic resources include routing processes and forwarding processes.

13. The network POP of claim 11, wherein the physical resources include control resources and data resources.

14. The network POP of claim 13, wherein the control resources include at least one routing table and the data resources include transmission bandwidth of at least one port of the routing system.

15. The network POP of claim 8, wherein the resources shared between the backbone virtual router and the regional virtual router are modifiable by a user.

16. A method comprising:

allocating a first set of resources as shared resources;

allocating a second set of resources as non-shared resources; and

implementing a plurality of virtual routers based on a sharing of resources from the first set of resources between the virtual routers and based on independently assigning resources of the second set of resources to the virtual router.

17. The method of claim 16, wherein the first and second set of resources are implemented by a single physical router system.

18. The method of claim 16, wherein the resources included in the first set of resources and the resources included in the second set of resources are user programmable.

19. The method of claim 16, wherein the resources of the first and second set of resources include logic resources and physical resources.

20. The method of claim 19, wherein the logic resources include routing processes and forwarding processes.

21. The method of claim 19, wherein the physical resources include control resources and data resources.

22. The method of claim 21, wherein the control resources include at least one routing table and the data resources include transmission bandwidth of at least one port of a routing system.

23. A routing system comprising:

means for performing routing processes;

means for performing forwarding processes;

means for implementing control resources;

means for implementing data resources; and

means for running a plurality of virtual routers that share selected ones of the means for performing routing processes, the means for performing forwarding processes, the means for implementing control resources, and the means for implementing data resources.

24. The routing system of claim 23, wherein the means for performing routing processes includes means for building routing tables and forwarding tables based on network topology.

25. The routing system of claim 24, wherein the means for performing forwarding processes includes means for comparing information in packet headers to the forwarding tables.

26. The routing system of claim 24, wherein the means for implementing control resources includes means for storing the routing and forwarding processes.

27. The routing system of claim 23, wherein the means for implementing data resources includes means for implementing a port bandwidth of the routing system.